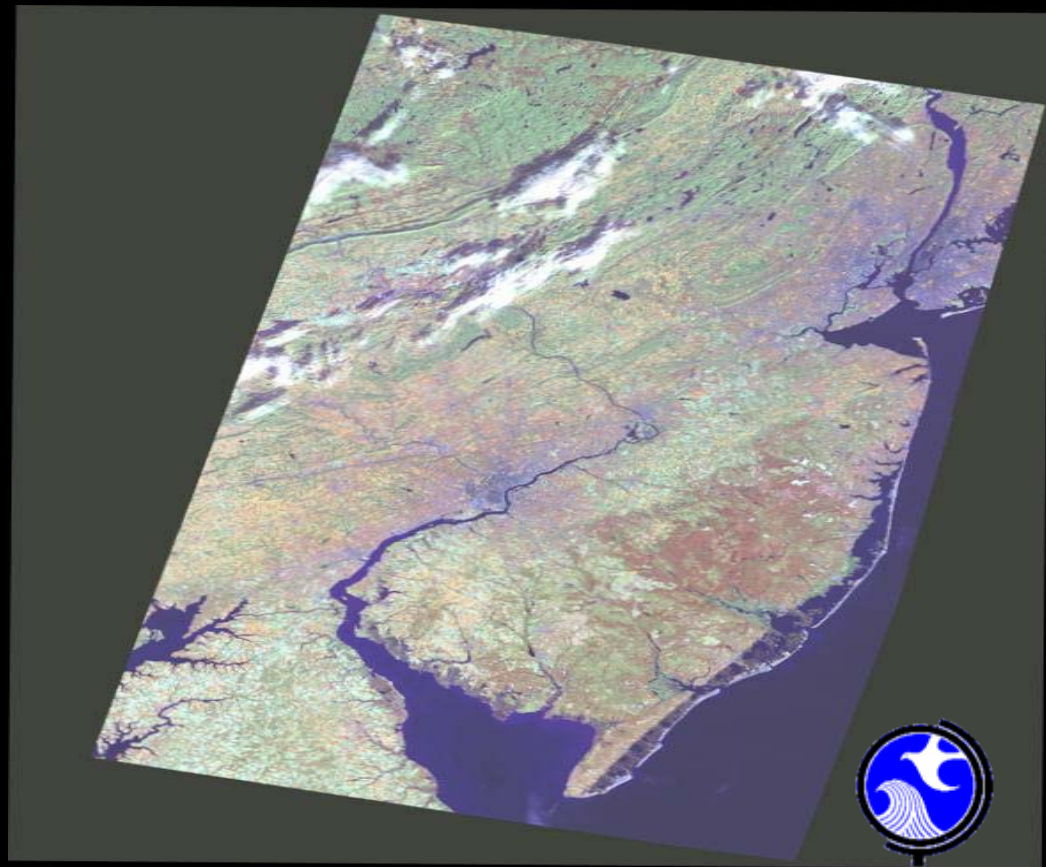
Watershed Watch Network

NJ Department of Environmental Protection

Danielle Donkersloot

Volunteer Monitoring Coordinator



Overview

- NJ Watershed Watch Network
- Changing the Stereotypes of Volunteer Collected Data
- Advisory Council
- NJ Tiered Approach to Volunteer Collected Data
- Data Users/Data Uses
- Lessons Learned
- Name That TIER

- Population NJ (2003) 8,638,396
- 7,417 square miles
- 1,134.4 persons per square mile

7,840 miles of rivers

DEP's latest evaluation, of the *2,308 assessed river miles, 1,913 (83%)river miles did not meet surface water quality standards*

Watershed Watch "Network"

- an interconnected system of things or people; a communication system consisting of a group of broadcasting stations that all transmit the same programs; communicate with and within a group;

WWN Advisory Council

- NGO, Volunteer Monitoring Coordinators
  - Watershed Associations
  - Riverkeepers
- Volunteers (paid and unpaid)
- EPA Region 2
- Office of Quality Assurance
- Monitoring and Standards Program
- Division of Watershed Management
- Delaware River Basin Commission

Internal Advisory Council Members

- Water Monitoring & Standards
  - Fresh Water & Biological Monitoring
  - Water Assessment Team
- Division of Science and Research
- Division of Watershed Mgt.
  - TMDL Team
  - 319 Team
  - NPS Team
  - Watershed Area Managers
- Office of Quality Assurance

Myths of Using Volunteers

- Quality Assurance and Quality Control
- Volunteers have “hidden agendas”
- Volunteers are not scientists

Reality of Using Volunteers

- We need more data at a higher frequency of collection
- EPA has been encouraging in using volunteer collected data
- Volunteers want to do it right

The 4 Tiered Approach

- Allows for volunteers to pick their level of monitoring involvement based on:
  - *Intended purpose for monitoring*
  - *Intended data use*
  - *Intended data users*

Options for Involvement

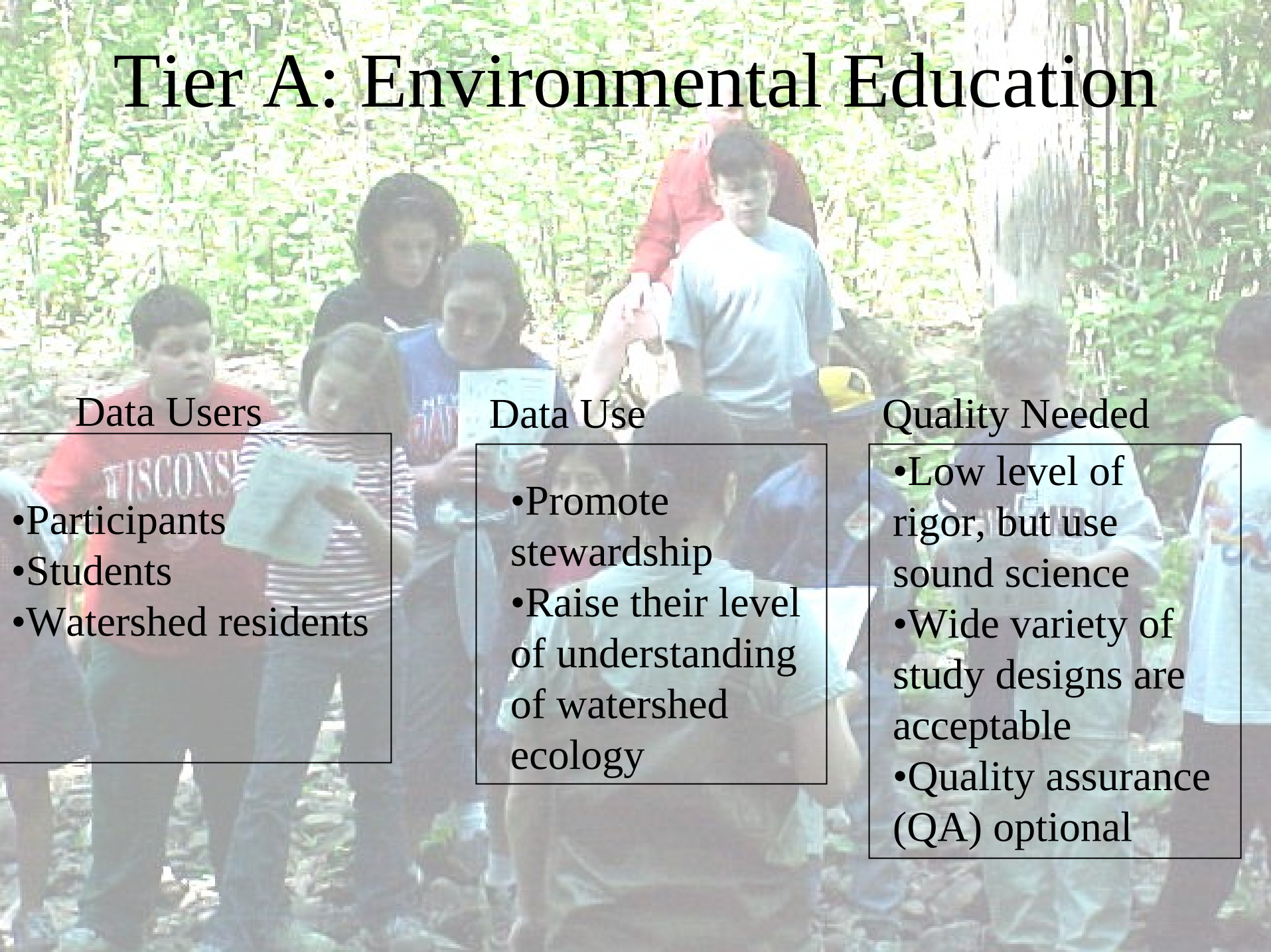
- Tier A: Environmental Education
- Tier B: Stewardship
- Tier C: Community Assessment
- Tier D: Indicators/Regulatory Response

Education/ Awareness → **Problem ID, Assess Impairment, Local Decisions** → **Legal & Regulatory**

Increasing Time - Rigor - QA - Expense $$

Geoff Dates, River Network

Tier A: Environmental Education



Data Users

- Participants
- Students
- Watershed residents

Data Use

- Promote stewardship
- Raise their level of understanding of watershed ecology

Quality Needed

- Low level of rigor, but use sound science
- Wide variety of study designs are acceptable
- Quality assurance (QA) optional

Tier B: Stewardship

Data User

- Participants
- Watershed residents
- Landowners
- Local decision makers (optional)

Data Use

- Understanding of existing conditions and how any changes over time
- Screen for and identify problems and positive attributes

Quality Needed

- Low to medium rigor
- Variety of study designs is acceptable
- Training Formal/Informal
- Internal QAPP recommended

Tier C: Community &/or Watershed Assessment

Data Users

- Local decision-makers
- Watershed association
- Environmental organizations
- Possibly DEP

Data Use

- Assess current conditions
- Track trends
- Source track down of Nonpoint source pollution

Quality Needed

- Medium/high level of rigor
- Data needs to reliably detect changes over time & space
- QAPP approved & on file w/ intended data user.
- Training required

Tier D: Indicators & Regulatory Response

Data Users

- NJDEP
- Local decision-makers
- Watershed associations
- Environmental organizations

Data Use

- Assess current conditions and impairments
- Supplement agency data collection
- Research
- Evaluate best management practices (BMP) measures
- Regulatory Response

Quality Needed

- High level of rigor
- Study design & methods need to be equivalent & recognized by agencies using data
- Training required
- QAPP approved by Office of Quality Assurance & data user, annual recertification
- Possible audit

Who Uses the Data in DEP?

- Watershed Area Managers *(TIERS B,C,D)*
- Water Assessment Team *(TIER D)*
- NPS Program *(TIER C, D)*
- 319 Program *(TIER B, C, D)*
- TMDL Program *(TIER B, C, D)*
- Other Programs or Divisions

Addressing Data Quality Issues

- Quality Assurance Criteria for each Tier
- QAPP or Study Design should be reviewed by Coordinator & Data Users
- Program Specific Training & Support
- Individual Evaluation of each Monitoring Program
- Volunteer Coordinator needs to be the *"translator"* between volunteer community & state
- Communication, Communication, Communication

THE STATE'S MONITORING MATRIX

NJ Water Monitoring & Assessment Strategy 2005-2014

Volunteer collected data is now integrated into the NJDEP Monitoring Matrix:

- Stream Monitoring
- Lake Monitoring
- Monitoring of Tidal Rivers & Estuaries
- Wetland Monitoring

1. Lessons Learned

Make it Easier for the Volunteers

You've gotten approvals,

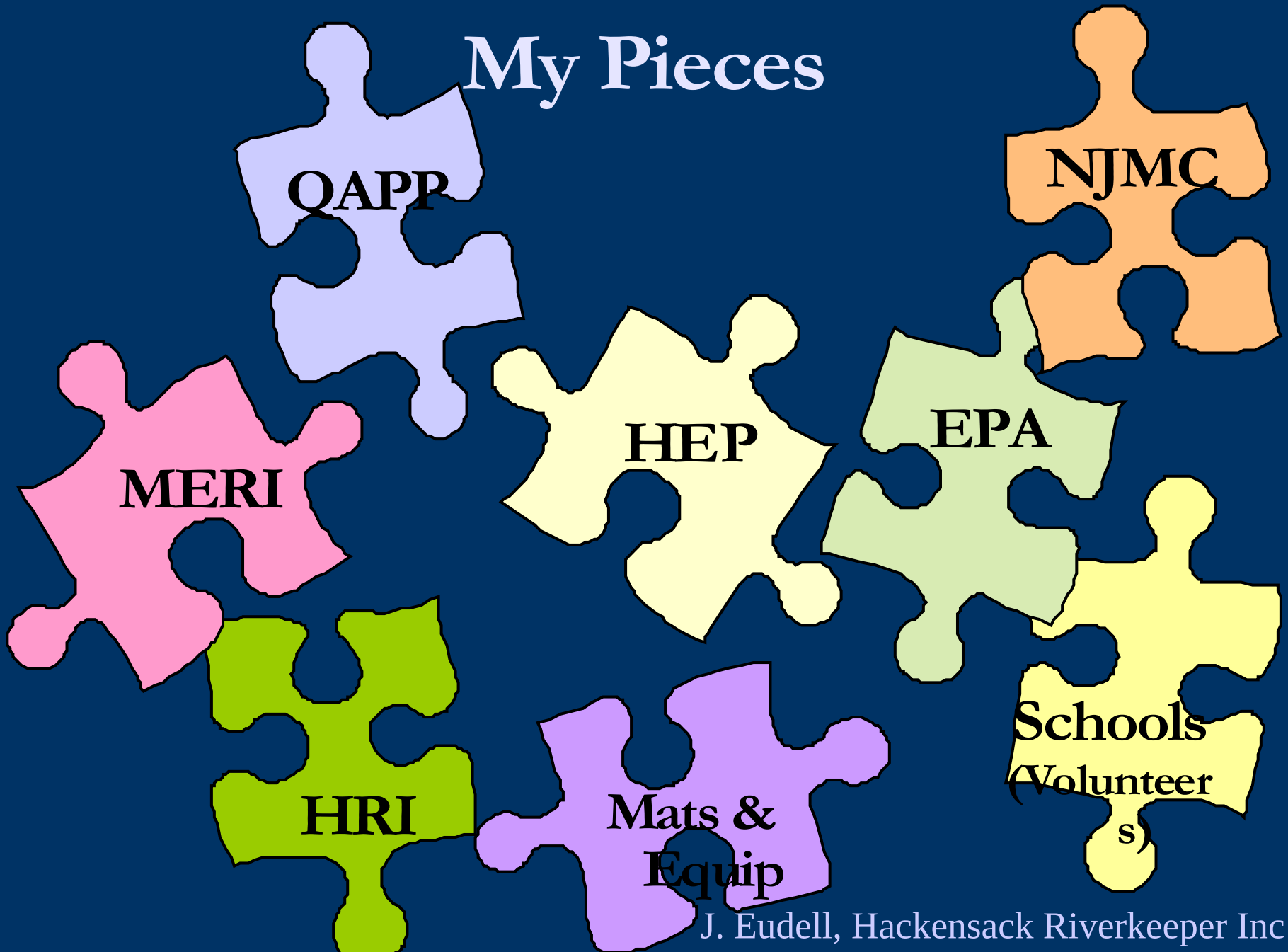
chosen certain environmental parameters,

selected monitoring sites,

and maybe you even have funding,

and some potential volunteers.

My Pieces



2002 IDEA !

Nov Recruit and train schools for 2002-2003

Dec Apply for NY-NJ HEP Mini-Grant

2003 REVISION

Feb Begin monitoring

Feb Told of QAPP necessity

Feb Begin QAPP process

March Receive HEP extension

Sept MERI proposes partnership; Put QAPP on hold

Oct Recruit and train schools for 2003-2004 (data doesn't count)

Dec Awarded NJMC/MERI grant; Revise QAPP

2004 IMPLEMENT??

Jan-Aug Detail HRI/MERI partnership; Revise QAPP

Sept Recruit and train schools for 2004-2005

Oct Still working on QAPP (when will data count?)

2. Lessons Learned
Unintended Data Use & Data Users

One example is…volunteer data was rejected by 303 d & 305 b Integrated Report because of the sampling frequency…YET the TMDL group found it very valuable….

3. Lessons Learned

DO NOT Design a Program for a Tier

Organizations will get frustrated very quickly if they do not design the program to meet their OWN goals first….

4. Lessons Learned
Clear Quality Assurance Guidelines

- *Spell out* who the Data Users are
- Offer Training in Methodologies & Procedures that are currently Acceptable to the Agency
- Review all available Resources/Guidance & then develop *Specific Guidance for your State*
- Ask the Groups What They Need Help with, then *HELP THEM*

Data Use

- Organizations need to *Take Ownership* of their Information
- Organizations need Guidance on Different Types of Data Use
    - share success and failures
    - get the word out, articles, press releases
    - find examples at all levels, local, state, & national

NAME THAT TIER

Pequannock River Coalition

Why did ***we*** choose temperature monitoring?

Trout!

Much of the of the Pequannock River mainstem and many river tributaries are classified as “trout production” where temperature can be a major limiting factor.

First documented fish kill caused by high river temperatures in the West Milford area in 1994 .

River temperature reached 82F.

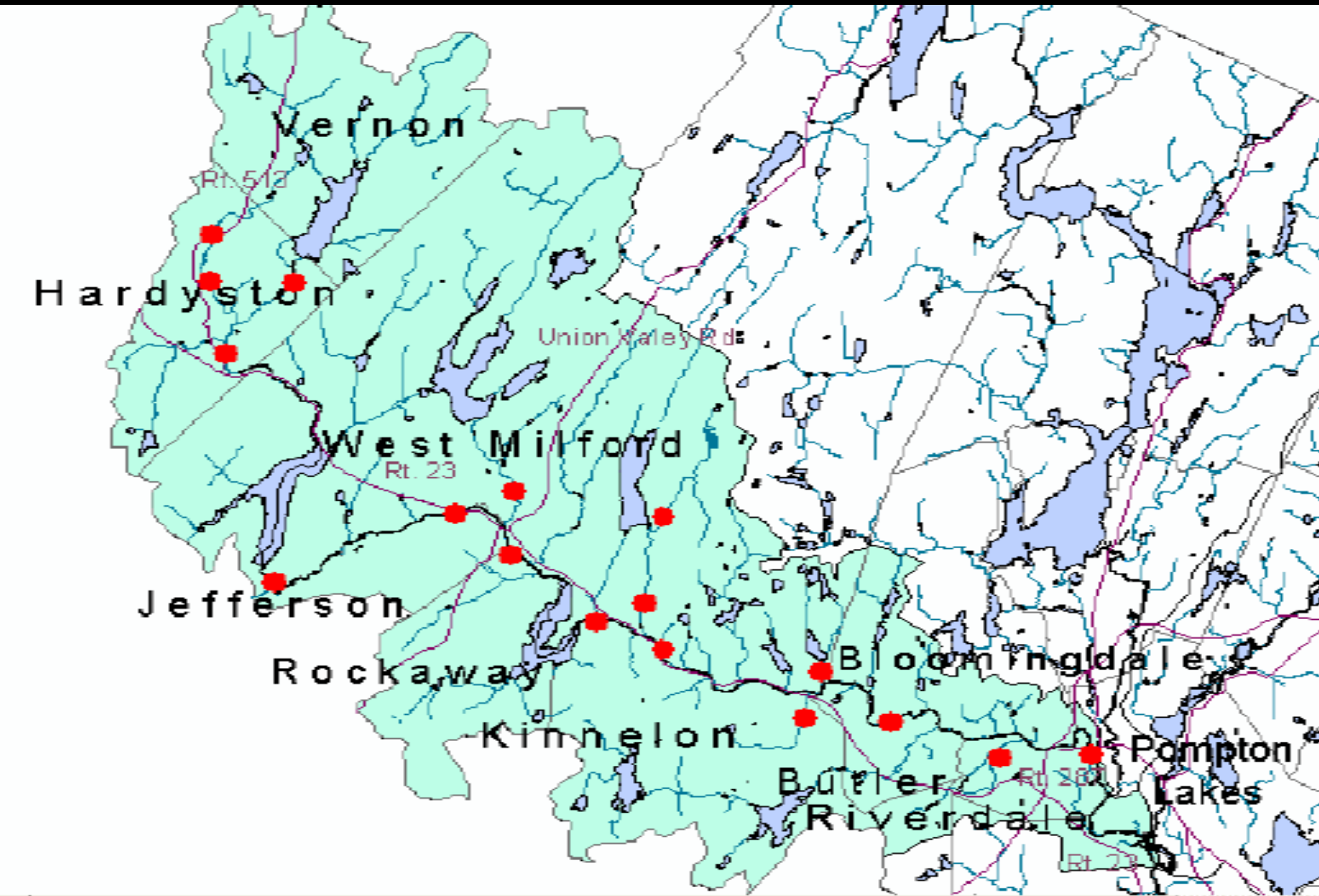
A second fish kill occurred in the same area in 2002.

River temperature reached 83F.

- Electronic “data loggers” are placed in the river at known monitoring locations in early summer for the whole growing season
- Stations are located where data loggers can be checked frequently
- Loggers record Temp every 30 minutes
- Early Fall they are removed & data is downloaded

Ross Kushner, Pequannock River Coalition

Locations are Fixed



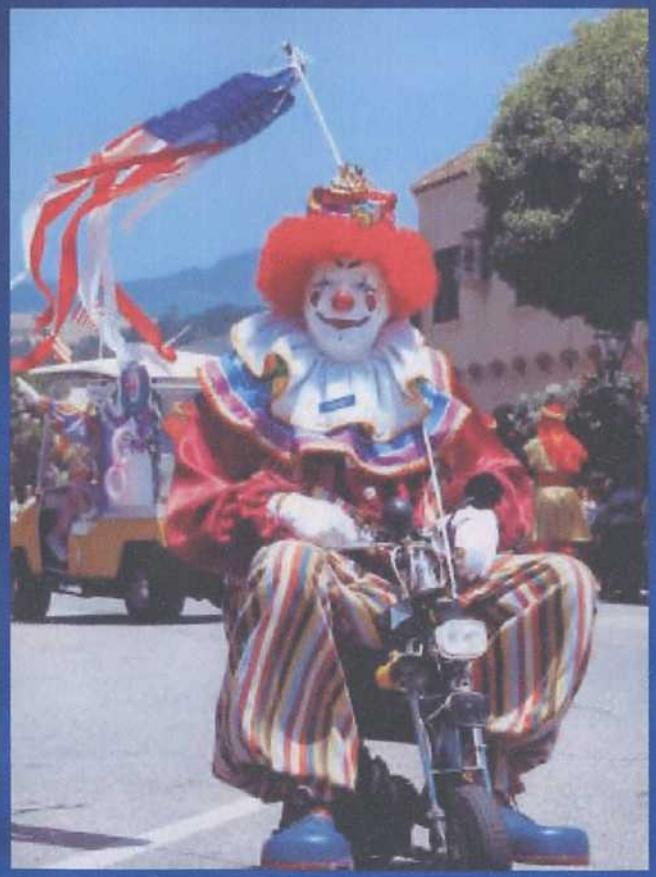
Are You Certifiable? Probably!

Requirements:

1 - Dedicated laboratory "manager" with experience or training.

2 - High-grade, approved QA/QC Plan and Procedures.

3 – Quarterly calibration checks of data loggers.



4 – Annual recalibration of NIST thermometer.

5 – Solid documentation of calibration tests, deployment sites, collected data, etc.

6 – Annual license fee ($900).

Ross Kushner, Pequannock River Coalition

NAME THAT TIER

Was this monitoring worthwhile?

YES!!

Pequannock Watershed Achievements:

- Identification of high-grade tributaries/land tracts.
- "Impairment" listing of Pequannock River segments and tributaries.
- Expedited TMDL development.
- Modification of existing Water Allocation Diversion permit with temperature/flow requirements.
- Higher level of stormwater management.
- Better protection of stream/river buffers.

Ross Kushner, Pequannock River Coalition

NAME THAT TIER

Delaware River Oil Spill Volunteer Emergency Response

- Basic Study Design
- Assigned Segments
- Assessment Tip Sheets
- Data Sheets *standardized* w/ State Protocol

- **No** Fixed monitoring locations
- **No** QAPP
- **No** Training

Please complete a copy of this datasheet at each station you visit in order to describe surrounding shoreline conditions and the degree of oiling along the shoreline. If you can safely walk the shoreline for a closer inspection, please do so. Record information as accurately and with as much detail as possible.

Please respect private property rights when conducting your assessment and do not put your self in harms way. Remember your safety and welfare take precedence over data collection.

Date (mm/dd/yy): _____ **Start Time (e.g. 14:20):** _____ **End Time:** _____

Observer: _____ **Station ID #** (from *Oil Spill Assessment Summary*): _____

Location Description: _____

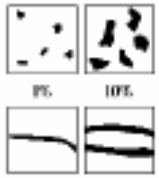
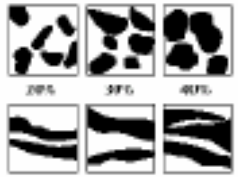
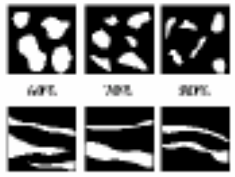
Weather Conditions: _____

Wind Direction: ❑ N; ❑ NE; ❑ E; ❑ SE; ❑ S ; ❑ SW; ❑ W; ❑ NW; ❑ None **Percent Clouds:** ❑ Clear; ❑ Partly Cloudy ❑ Overcast
(Note: a wind blowing from the west, toward the east, is called a west wind)

Tide Stage: ❑ Outgoing; ❑ Incoming; ❑ Low/Slack; ❑ High (Refer to tide charts and water levels)

Water Surface Conditions: ❑ Calm; ❑ Light Chop; ❑ Heavy Chop; ❑ Swells

Oil spill impacts observed? ❑ Y; ❑ N; **If yes, approximate length & width of impact.** Length _____ Width _____

Impacted Habitat Types and Materials: Check all habitat types or materials present	No Impact or Trace (<1%)	Sporadic 1-10% 	Patchy 11- 50% 	Broken 51 - 90% 	Continuous 91- 100%
Water					
Marsh/Swamp					
Tidal Flat					
Sand or Shell Beach					
Dune					
Rip-Rap (large rock used as to prevent erosion)					
Bulkhead, Manmade Structures					
Other Vegetation					
Other (describe)					

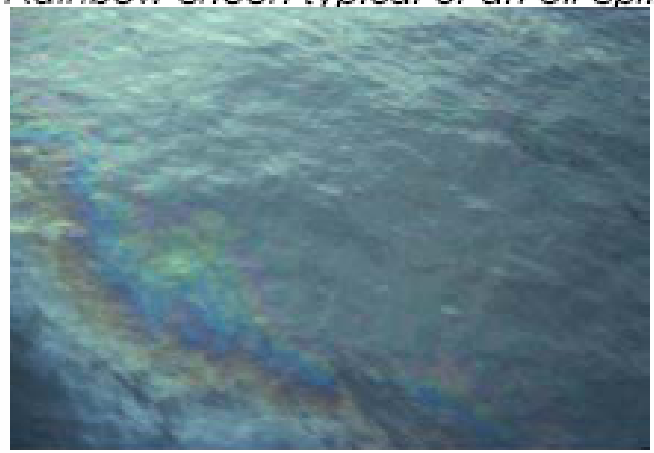
Resources on Scene: ❑ Laborers; ❑Booms; ❑Small Boats; ❑Vehicles; ❑ Other (describe) _____
If present, are containment booms sagging and not blocking/stopping/containing oil? ❑ Y; ❑ N
If present, are absorbent booms saturated and leaking oil? ❑ Y; ❑ N

Is there any collected waste oil that needs to be removed? ❑ Debris; ❑ Oil Bags; ❑ Sorbent Boom; ❑ Sorbent Pads

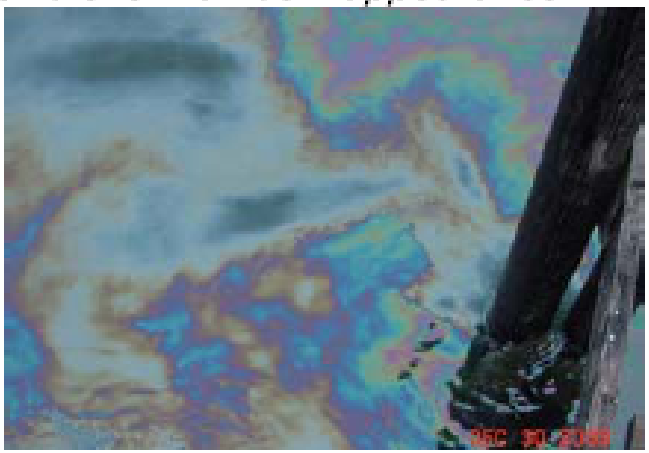
Oil Spill Containment

Sorbent boom at spill site.

Rainbow sheen typical of an oil spill.



Unbroken rainbow appearance.



Oil in creek along streambank.

Oil stains at low tide.

Oiled Debris in Need of Clean Up

Faith Zerbe, Delaware Riverkeeper Network

Boom Placement & Malfunction

Faith Zerbe, Delaware Riverkeeper Network

Faith Zerbe, Delaware Riverkeeper Network

What did Volunteers Document?

- 15 New Jersey tributaries suffered oiling
- One Delaware tributary suffered oiling
- 4 New Jersey Beaches suffered oiling
- Three wildlife preserves suffered oiling
- Various main stem Delaware locations

- 13 streams monitored had no signs of oiling at time of monitoring (PA and DE mostly)

Faith Zerbe, Delaware Riverkeeper Network

Riverkeeper Data Use

- Emergency response/clean up vigilance
- Talks with Coast Guard and NRDA officials – checks on scope of oiling, reports
- Press
- Increased citizen base for advocacy issues

Faith Zerbe, Delaware Riverkeeper Network

Natural Resource Damage Assessment

Faith Zerbe, Delaware Riverkeeper Network

NAME THAT TIER

Van Saun Brook

•2000, the Bergen County Environmental Council trained by NJDEP in Save Our Stream's protocol

•2001, Environmental Council notified the NJDEP volunteer coordinator of a potential restoration project

•2002, NJDEP, 319 (H) Program awarded $100,000

VM Station #1
VM Station #2
NJDEP Monitoring Station

The Outcome

- 250 ft of Restoration at site 1, in-kind match
- Dredging of the Pond, in-kind match
- Sewer the zoo on site, in-kind match
- $100,000 towards the Buffer Restoration at site 2
- Site monitoring, post restoration

NAME THAT TIER